



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/534,396

12/03/2005

Walter Mehnert

8263

2870

67886 7590 04/23/2008

WOODLING, KROST AND RUST  
9213 CHILLICOTHE ROAD  
KIRTLAND, OH 44094

EXAMINER

WHITTINGTON, KENNETH

ART UNIT

PAPER NUMBER

2862

MAIL DATE

DELIVERY MODE

04/23/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |   |                                       |  |
|------------------------------|---|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/534,396      | <b>Applicant(s)</b><br>MEHNERT ET AL. |  |
|                              | <b>Examiner</b><br>KENNETH J. WHITTINGTON | <b>Art Unit</b><br>2862               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 14-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 14-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/3/05;10/23/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on November 20, 2002 and December 17, 2002. It is noted, however, that applicant has not filed a certified copy of the 10259223.3 and 10254231.7 applications as required by 35 U.S.C. 119(b), nor does it appear from USPTO records that it was received from the International Bureau in this National application.

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it contains terms that can be implied, i.e., "The invention pertains to". Correction is required. See MPEP § 608.01(b).

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "Position detector for detecting

translational ... movements" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

It is noted that all of the drawings show only rotational position detectors, but none are concerned with linear or translational detectors.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 16 is objected to because "the non-volatile memory", "the induction coils" and "the Hall sensor" both lack antecedent basis. The coils and Hall sensor items were introduced in claims 14 and 15, not claim 1 from which claim 16 depends. Claim 16 should thus depend on either or both of claims 14 or 15 and will be interpreted as such. Appropriate correction is required.

Claim 20 is objected to because "the evaluation circuit" lacks antecedent basis. Appropriate correction is required.

Claim 21 is objected to because "the evaluation circuit" lacks antecedent basis. This claim should depend from claim 20. Appropriate correction is required.

Claim 22 is objected to because "the non-volatile memory unit" lacks antecedent basis. This claim should depend from claim 21. Appropriate correction is required.

Claim 23 is objected to because "the coils" lack antecedent basis. This claim should depend from claim 14. Appropriate correction is required.

Claim 27 is objected to along similar lines as claim 16 with respect to the same features. It should similarly depend from claims 25 or 26).

Claim 24 is objected to because its dependency is unclear, i.e., "according to Claim 24 of the preceding claims". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Mehnert et al. (US5714882), hereinafter Mehnert. Regarding claim 1, Mehnert discloses a position detector for detecting translational and/or rotational movements with at least one exciter magnet (See Mehnert FIGS. 1, item 9), only one ferromagnetic element and at least one induction coil (See FIGS. 1, note sensor coil 15), and at least one additional sensor element for determining information concerning the polarity and the position of the exciter magnet (See FIG. 1,

Art Unit: 2862

note auxiliary sensor 16), where all of the information needed to determine the direction of movement of the exciter magnet is available at the time that the one ferromagnetic element is triggered (See col. 6, lines 56-64).

Regarding claim 14, Mehnert discloses the additional sensor element (SE) is a second induction coil (SP2) over the ferromagnetic element (FE) and is used to determine the direction in which the remagnetization of the ferromagnetic element (FE) is triggered (See FIG. 1, item 16).

Claims 1-3, 17-22, 24, 25, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Steinich et al. (US6084400), hereinafter Steinich.

Regarding claim 1, Steinich discloses a position detector for detecting translational and/or rotational movements with at least one exciter magnet (See Steinich FIGS. 1 and 9, items 10-12), only one ferromagnetic element and at least one induction coil (See FIGS. 1 and 9, note sensor 6 are Wiegand sensors having a pulse-wire and an induction coil there around, note each sensor has only one ferromagnetic element), and at least one additional sensor element for determining information concerning the polarity and the position of the exciter magnet (See FIGS. 1 and 9, note other two sensors 7 and 8), where all

of the information needed to determine the direction of movement of the exciter magnet is available at the time that the one ferromagnetic element is triggered (Note this is merely a property of the system shown in FIGS. 1 and 9 of Steinich. See also col. 3, lines 14-34).

Regarding claim 2, Steinich discloses the ferromagnetic element (FE) is a pulse wire (See FIGS. 1 and 9, sensor 6 and disclosure related thereto).

Regarding claim 3, Steinich discloses the induction coil (SP or SP1) is used to measure the remagnetization direction and, in conjunction with the additional sensor element (SE), to determine the direction in which the remagnetization of the ferromagnetic element (FE) is triggered (See Steinich FIGS. 1 and 9, note sensor 6 and note also the features of this claim are merely properties of a Wiegand sensor).

Regarding claim 17, Steinich discloses the axis of the ferromagnetic element (FE) is parallel to the direction of movement of the exciter magnet (EM) (See FIG. 1, note since the magnets 10-12 rotate, if the sensor 6 is at 12 o'clock, then the magnets are moving parallel to the axis of the sensor at 3 and 9 o'clock).

Regarding claim 18, Steinich discloses that the axis of the ferromagnetic element (FE) is perpendicular to the direction of



Art Unit: 2862

movement of the exciter magnet (EM) (See FIG. 1, note that when the magnets 10-12 pass directly by the sensor 6, the movement axis is perpendicular to the sensor wire axis).

Regarding claim 19, Steinich discloses that at least one ferromagnetic flux-conducting piece for guiding and/or bundling the flux is assigned to the ferromagnetic element (See FIGS. 1 and 9, note each sensor 6-8 has a ferromagnetic element or Wiegand wire therein, their use together to measure speed is interpretable as assigning).

Regarding claim 20, Steinich discloses the energy supply for the evaluation circuit (30) can be taken from the signals sent by the induction coils (SP, SP1, SP2) used to detect position and/or polarity (See col. 5, lines 34-54).

Regarding claim 21, Steinich discloses the evaluation circuit (30) comprises at least one counter (38), a nonvolatile memory unit (36), and a capacitor (C) (See FIG. 9).

Regarding claim 22, Steinich discloses the nonvolatile memory unit (36) is a FRAM and/or an EEPROM unit (See col. 5, lines 64-65).

Regarding claim 24, Steinich discloses the induction coil (SP or SP1) is used to measure the remagnetization direction and, in conjunction with the additional sensor element (SE), to determine the direction in which the remagnetization of the

Art Unit: 2862

ferromagnetic element (FE) is triggered (See FIGS. 1 and 9, note sensors 6-8 and disclosure related thereto and col. 3, lines 14-34).

Regarding claim 25, Steinich discloses the additional sensor element (SE) is a second induction coil (SP2) over the ferromagnetic element (FE) and is used to determine the direction in which the remagnetization of the ferromagnetic element (FE) is triggered (See FIGS. 1 and 9, note that each of sensors 6-8 are Wiegand sensors, thus each are disposed on a ferromagnetic element to operate).

Regarding claim 28, Steinich discloses that at least one ferromagnetic flux-conducting piece for guiding and/or bundling the flux is assigned to the ferromagnetic element (See FIGS. 1 and 9, note each sensor 6-8 has a ferromagnetic element or Wiegand wire therein, their use together to measure speed is interpretable as assigning).

Regarding claim 29, Steinich discloses the energy supply for the evaluation circuit (30) can be taken from the signals sent by the induction coils (SP, SP1, SP2) used to detect position and/or polarity (See col. 5, lines 34-54).

Claims 1, 23 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Fowler (US6265867). Regarding claim 1,

Art Unit: 2862

Fowler discloses a position detector for detecting translational and/or rotational movements with at least one exciter magnet (See Fowler FIGS. 1-3, items 106 or 206), only one ferromagnetic element and at least one induction coil (See FIGS. 1-3, note sensor coil and core 210), and at least one additional sensor element for determining information concerning the polarity and the position of the exciter magnet (See FIGS. 1-3, note other sensors than 210, i.e., 212, 214 or 216), where all of the information needed to determine the direction of movement of the exciter magnet is available at the time that the one ferromagnetic element is triggered (See FIG. 3, note all information to determine direction of movement is obtained as a result of signals from sensors).

Regarding claims 23 and 30, Fowler discloses that one of the coils can be supplied with an external current pulse, which serves either to initiate the biasing of the ferromagnetic element or to continue that biasing (See FIGS. 1-3, note sensors are fluxgate sensors which have an oscillating bias current in them to provide a bias field to their respective coils).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 16, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinich in view of Romanik et al. (US7113063), hereinafter Romanik. Regarding claims 15 and 26, Steinich teaches the features noted above with regard to claims 1 and 2, and further the use of additional sensors being Wiegand sensors, but not the use of a Hall sensor as the additional sensor. Romanik teaches using Hall sensors for measuring the rotation of a magnet (See Romanik FIGS. 1-4, magnets 140 or 340 and see sensors 165 and 170 or 365 and 370). It would have been obvious at the time the invention was made to use a Hall sensor in lieu of one of the Wiegand sensors in the apparatus of Steinich. One having ordinary skill in the art would do so because as noted in Romanik, Hall sensor, reed sensors and Wiegand sensors are interchangeable for measuring a

Art Unit: 2862

passing magnet (See Romanik col. 3, lines 14-28 and col. 6, lines 50-62).

Regarding claims 16 and 27, this combination teaches that the complete set of information available at the time for determining the polarity and direction of movement of the exciter magnet consists of the data in the nonvolatile memory and the signals at the output terminals of the induction coils or the signals at the output terminals of the induction coil (SP) and at the output terminals of the Hall sensor (See Steinich col. 3, lines 14-34 and FIG. 9, note disclosure related thereto and not using one Hall sensor in lieu of the Wiegand sensor as taught by Romanik).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH J. WHITTINGTON whose telephone number is (571)272-2264. The examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the

Art Unit: 2862

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenneth J Whittington/  
Primary Examiner, Art Unit 2862